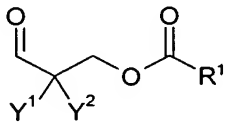
Claims

1. A polyaldimine which is obtainable from

at least one polyamine **A** having aliphatic primary amino groups

and

at least one aldehyde **B** of the formula



where Y^1 and Y^2 either

independently of one another are an alkyl, aryl or arylalkyl group, which if desired may in each case be substituted, if desired may in each case contain heteroatoms and if desired may in each case contain unsaturated components;

or Y^1 and Y^2

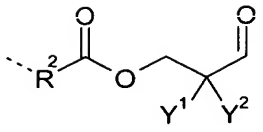
are connected to one another to form a carbocyclic or heterocyclic ring which has a ring size of between 5 and 8, preferably 6, atoms and if desired contains one or two singly unsaturated bonds;

and

R^1 stands either

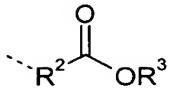
for a linear or branched alkyl chain having 11 to 30 carbon atoms, with or without at least one heteroatom, in particular with at least one ether oxygen, or for a singly or multiply unsaturated linear or branched hydrocarbon chain having 11 to 30 carbon atoms;

or for



;

or for



;

where R^2 is a linear or branched or cyclic alkylene chain having 2 to 16 carbon atoms, with or without at least one heteroatom, in particular with at least one ether oxygen, or is a singly or multiply unsaturated linear or branched or cyclic hydrocarbon chain having 2 to 16 carbon atoms,
and
R^3 is a linear or branched alkyl chain having 1 to 8 carbon atoms.

2. The polyaldimine as claimed in claim 1, characterized in that the polyamine **A** having aliphatic primary amino groups is selected from the group consisting of 1,6-hexamethylenediamine, MPMD, DAMP, IPDA, 2,2,4- and 2,4,4-trimethylhexamethylenediamine, 4-aminomethyl-1,8-octanediamine, 1,3- and 1,4-xylylenediamine, 1,3- and 1,4-bis-(aminomethyl)cyclohexane, bis(4-aminocyclohexyl)methane, bis-(4-amino-3-methylcyclohexyl)methane, 3(4),8(9)-bis(aminomethyl)-tricyclo[5.2.1.$0^{2,6}$]decane, 1,2-, 1,3- and 1,4-diaminocyclohexane, polyoxyalkylene polyamines having in theory two or three amino groups, especially Jeffamine® EDR-148, Jeffamine® D-230, Jeffamine® D-400 and Jeffamine® T-403, and also mixtures of two or more of the aforementioned polyamines.

3. The polyaldimine as claimed in either of the preceding claims, characterized in that the aldehyde **B** used for preparing the polyaldimine is obtainable by means of an esterification reaction of a ß-hydroxy aldehyde with a carboxylic acid, in particular without use of a solvent, the ß-hydroxy aldehyde being prepared, in situ if appropriate, from formaldehyde, and/or paraformaldehyde, and from a second aldehyde, this second aldehyde being selected from the group consisting of isobutyraldehyde, 2-methylbutyraldehyde, 2-ethylbutyraldehyde, 2-methylvaleraldehyde, 2-ethylcaproaldehyde, cyclopentanecarboxaldehyde, cyclohexanecarboxaldehyde, 1,2,3,6-tetrahydrobenzaldehyde, 2-methyl-3-phenylpropionaldehyde, 2-phenylpropionaldehyde and diphenylacetaldehyde, preferably isobutyraldehyde.

4. The polyaldimine as claimed in claim 3, characterized in that the carboxylic acid used for preparing the aldehyde **B** is selected from the group consisting of lauric acid, myristic acid, palmitic acid, stearic acid, oleic acid, linoleic acid, linolenic acid, succinic acid, adipic acid, azelaic acid and sebacic acid.

5. The polyaldimine as claimed in any one of the preceding claims, characterized in that for preparing the polyaldimine the aldehyde **B** is used stoichiometrically or in a stoichiometric excess in relation to the primary amino groups of the polyamine **A**.

6. The polyaldimine as claimed in any one of the preceding claims, characterized in that $Y^1 = Y^2$ = methyl.

7. A process for preparing a polyaldimine as claimed in any one of claims 1-6, comprising reacting an aldehyde **B** with a polyamine **A** having aliphatic primary amino groups.

8. The process for preparing a polyaldimine as claimed in claim 7, further comprising a step of preparing an aldehyde **B** from a carboxylic acid and

a ß-hydroxy aldehyde, in particular without use of a solvent, the ß-hydroxy aldehyde being prepared, in situ if appropriate, from formaldehyde, and/or paraformaldehyde or oligomeric forms of formaldehyde, and from a second aldehyde.

9. The process for preparing a polyaldimine as claimed in claim 7, further comprising a step of preparing an aldehyde **B** from a carboxylic acid and 3-hydroxypivalaldehyde, in particular without use of a solvent, 3-hydroxypivalaldehyde being prepared, in situ if appropriate, from formaldehyde, and/or paraformaldehyde, and from isobutyraldehyde.

10. The process for preparing a polyaldimine as claimed in claim 7, 8 or 9, characterized in that no solvents are used during the preparation of the polyaldimine and/or of the aldehyde.

11. The use of a polyaldimine as claimed in any one of claims 1-6 in compositions which comprise components that are reactive toward amines.

12. The use of a polyaldimine as claimed in claim 11, characterized in that the components that are reactive toward amines are isocyanate groups.

13. The use of a polyaldimine as claimed in claim 11 or 12, characterized in that the composition is used as an adhesive, sealant, coating or covering.

14. A hydrolysis process characterized in that a polyaldimine as claimed in any one of claims 1-6 is brought into contact with water in the gaseous aggregate state, in particular in the form of atmospheric moisture, and aldehyde **B** is released.

15. A hydrolysis process characterized in that a polyaldimine as claimed in any one of claims 1-6 is brought into contact with water in the form of a water-containing component or a water-releasing component, and

aldehyde **B** is released.

16. The hydrolysis process as claimed in claim 14 or 15, wherein the polyaldimine is present in a composition which comprises components that are reactive toward amines.